

Erin Carrillo. Helping Users Find Their Way: Usability Testing of Subject Guides at Duke University Libraries. A Master's paper for the M.S. in L.S. degree. April, 2012. 48 pages. Advisor: Jeffrey Pomerantz

This study describes usability testing of four subject guides (created using LibGuides) at Duke University. Subjects completed two tasks for each guide, then were asked to rate the ease of use of the guide, as well as elaborate on features that made the guide difficult to use and easy to use, and make suggestions to improve usability of the guide.

Despite the high failure rate of many of the tasks, the guides were generally perceived as easy to use. Features identified as facilitators to use were clearly labeled tabs, organization of resources within boxes, descriptions of resources, and clearly labeled boxes. Features identified as barriers to use were the inclusion of too many resources, lack of instruction on using guides, and lack of resource description. Subjects expressed a desire for instruction on using guides, description of resources, tables of contents, and a "Getting Started" tab to orient users.

Headings:

Finding aids (Library resources)

Web sites -- Use studies

User interfaces (Computer systems)

Web sites -- Evaluation

Internet -- College and university libraries

HELPING USERS FIND THEIR WAY: USABILITY TESTING OF SUBJECT
GUIDES AT DUKE UNIVERSITY LIBRARIES

by
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Introduction

Librarians have long developed tools to help users locate and access the highest quality and most relevant resources for their needs. In late-19th century American academic libraries, librarians created bibliographies, descriptions of library materials along with their shelf locations and subject scope, which were designed to introduce users to items within the collection (Smith, 2008). Book lists were created in the mid-20th century to address the growth in research libraries' collections due to the expansion of science and technology research after World War II, and served as finding aids and reading lists. Toward the end of the century, pathfinders transformed readers' aids into learning tools by emphasizing process in addition to resource awareness. They were designed to assist users who were unfamiliar with a subject and included scope notes, subject headings, and call number ranges. With the rise of the Internet, readers' aids went electronic and included electronic resources, providing access as well as awareness of resources, but moving away from pathfinders' guidance through the research process. Springshare's LibGuides has made this process easier and more accessible to librarians; all library staff, regardless of their level of web development skills, can quickly and easily create a subject guide or course page (Buczynski, 2009). However, though librarians continue to develop these tools, few studies are done to assess user satisfaction (Vileno, 2007). As the popularity of this tool grows,

it is important to evaluate LibGuides' utility and usability, and develop standards or best practices that increase the effectiveness of these resources.

Duke University Libraries began investigating LibGuides in 2008. The Subject Portals Task Force was charged with implementing and assessing the use of LibGuides for course and subject guides. In the fall semester of 2008, the task force surveyed faculty who taught courses in which a LibGuide was included in the course page and conducted a focus group of librarians at Duke who had created LibGuides. In the spring semester of 2009, the task force surveyed students who were enrolled in courses for which a LibGuide was included in their course page, as well as users of the libraries' subject guides, and conducted usability testing. During both semesters, Google Analytics statistics were collected for all LibGuides (*LibGuides assessment report: Fall 2008 & spring 2009*. 2009; Daly, E. & Whiteside, A., 2010).

Based on the feedback and usability testing, the task force made recommendations for changes that could be made to increase usability of the LibGuides. Help documents were created and added to the staff intranet, but the suggested actions based on the findings of the usability study were never enforced and LibGuides design has been left largely to the discretion of individual librarians (*LibGuides assessment report: Fall 2008 & spring 2009*. 2009; Daly, E. & Whiteside, A., 2010).

Besides tracking usage statistics, LibGuides assessment has not been conducted since Spring 2009. Duke currently has 729 published guides, which got a total of 284,600 hits in 2011. The Instruction & Outreach Department, who support library instruction efforts, would like to discuss with librarians what support they might need for developing LibGuides, as well as conduct usability studies of the

guides. The department hopes to generate data that might justify enforcing best practices as a way to ensure cooperation by librarians. My proposed research will focus on assessing the usability of LibGuides developed by Duke University's librarians. I hope to discover which features or qualities of LibGuides facilitate use (i.e. what helps users find the information they are seeking) as well as which features or qualities are barriers (i.e. where do users have trouble and why?). Based on the results of the testing, I will suggest what librarians should incorporate into their LibGuide design, as well as what they should eliminate or avoid, in order to make their guides more effective tools for supporting users' research and learning.

Literature Review

Usability Study Designs

Vileno (2007) reviewed the literature on pathfinders to determine whether librarians assessed the pathfinders they created. Since the late 1990s, much of the writing on pathfinders has not been based on research. Librarians seem to prefer to design pathfinders from the perspective of the user, though without attempting to discover what their users need. What research has been conducted on electronic pathfinders has considered such issues as topic selection, inclusion criteria, design guidelines, target audience, usage, user evaluations, usability, accessibility, marketing, information literacy, and workload. Methods used to assess usability included usability tests, surveys, focus groups, and interviews.

Vileno (2010) conducted a usability test of two subject guides in order to observe how students interacted with guides and make improvements based on these observations, and assess the feasibility of usability testing for evaluating web-

based library tools. Tasks were designed to test whether the guides were successful in helping students achieve desired goals and objectives. Participants were assigned the tasks and given the option of speaking into a microphone or writing their answers, and encouraged to think out loud. The tests were recorded with Camtasia, allowing the librarian to observe relatively unobtrusively. Though time-consuming, the tests were considered feasible and valuable.

Librarians at the University of Colorado, Boulder administered an open card sort to undergraduates, graduate students, and librarians to explore preferences in content and organization of research guides, as well as contrasting mental models (Sinkinson, Alexander, Hicks, & Kahn, 2012). Participants were given a set of cards representing example content, and asked to sort the cards into categories that they created, discarding irrelevant cards and writing down missing elements or resources. Additional comments and suggestions were solicited in a post-session survey.

University of Wisconsin-Madison Libraries had undergraduates, graduate students, and faculty evaluate a biology subject guide (Dean, 1998). Students were asked to interpret terms used in major category headings before evaluating ease-of-use with a hands-on exercise in which they recorded their paths through the guide. They then participated in focus groups. Faculty were asked about using the guide after exploring it and being given a demonstration.

When the University of British Columbia Libraries decided to adopt LibGuides for their subject guides, they wanted the future direction of their guides to be informed by consulting their users. To this end, they created a questionnaire

to discover which features, content, and design would make subject guides most useful to students, and distributed it widely to students from a variety of disciplines (Hintz et al., 2010).

As part of a year-long assessment of LibGuides at Duke University, librarians had students complete tasks using a LibGuide while thinking aloud about their choices, as well as answer questions regarding preferences and suggestions for improvement (Daly, E. & Whiteside, A., 2010).

Prompted by the migration of their subject and course guides from static webpages to LibGuides, University of Washington Libraries conducted usability tests to investigate how the guides were being used. Participants completed tasks using LibGuides and rated their ease of use on a Likert scale. After completing the scenarios, participants completed an X's & O's exercise, in which they were given screen shots of pages of LibGuides and asked to circle useful areas, cross out areas they did not find useful, and add comments or content they felt was missing. At the end of the study, participants completed a post-study questionnaire gathering their experience and perceived usefulness of the guides (Hungerford, Ray, & Tawatao, C. & Ward, J., 2010).

Findings and Best Practices

Hintz et al. (2010) found the top ten priorities for students to be: a simple, clean layout, short annotations describing resources, a search feature, brief instruction linked to resources, easy-to-understand content, librarian contact information, tabs for navigation, citation help, section headings, and manageable page length to limit scrolling. Students expressed a preference for shorter

annotations, with instruction on how to best make use of resources. Web 2.0 features such as discussion forums, student recommendations, and personalization features were met with confusion and skepticism.

Duke University librarians also found that users appreciate an uncluttered interface, but that they wanted enough content to make the guide useful; that users do not usually notice tabs and that fewer tabs with shorter labels increase their effectiveness; that nearly all users prefer short, targeted lists of resources and find descriptions of resources helpful; and that users consider social networking features and commenting unnecessary (Daly, E. & Whiteside, A., 2010). Vilenko (2010), on the other hand, concluded that writing annotations was a lower priority than other suggested changes, which included more specific and clearer labeling and shorter pages.

University of Colorado Boulder librarians found that, overall, participants preferred guides to be organized by a specific research need as opposed to resource format (Sinkinson et al., 2012). Librarians' comments showed that they understood this, though most research guides are, in fact, organized by format. Though undergraduates' comments revealed that they found library webpages to be cluttered, overwhelming and lacking a clear path where to begin, they discarded only one percent of the cards. Graduate students were more selective, and librarians had the highest discard rate of all. This disconnect between librarians' understanding of users' mental models and their behavior in creating content suggests that librarians' should be more reflective in their design of research guides.

Testing of the biology subject guide at the University of Wisconsin-Madison revealed that terminology understood by librarians was often misinterpreted by students, and that headings describing page content was more effective (Dean, 1998). Annotated descriptions of headings were ignored. Faculty suggested providing a site map or outline of the guide for navigation, adding the capability to perform a keyword search on guide content, including a scope note for the guide and its individual pages, and made suggestions for changing resource classifications that seemed too technical.

University of Washington Libraries found that users preferred fewer tabs and shorter labels on each tab, as well as static descriptions of resources and clearer labels for resources. Based on these and other findings, they recommended including a Home page/tab to orient users to the guide and providing descriptions of resources and guidance in their use.

In this study, I am building upon the previous work done at Duke, and adapting the usability testing methodologies used by the University of Washington and Concordia University.

Methods

Data Collection

Test instrument.

Four subject guides were selected, with an attempt to cover a broad range of subject areas and guide design: Images Collections for Duke Users, Neuroscience, German Studies, and Economics. Two tasks were written for each guide, designed to require students to interact with features of the guides (e.g. resource descriptions,

tabbed navigation) that had been identified as either problematic or desirable by previous studies. An expected path (i.e., the shortest path that led to successful completion of the task) was developed and included on the script for the observed usability testing, and was later used for analysis. The tasks were followed by a series of questions asking the student to rate the ease of use of the guide, as well as elaborate on features that made the guide difficult to use and easy to use, and soliciting suggestions to improve usability of the guide. Permission was obtained from the librarians who created the guides, and any requested changes to the test instrument were made. Though having subjects complete tasks on particular guides allowed for investigating particular features and comparing results between subjects, the tasks are artificial and imposed, and this lack of naturalistic observation is a limitation of this study. The test script is included in Appendix A.

Pilot test.

A pilot test was conducted with a student member of the Perkins Library's circulation staff; an undergraduate Psychology major in her fourth year. We tested the Economics, Neuroscience, and German Studies guides. The author administered the test while a librarian in the Instruction & Outreach department took notes in Evernote. The screencapture and audio were recorded using Morae Recorder. The student was asked to think aloud as she completed the tasks, and was prompted to explain why she had taken a particular path or chosen a particular resource.

Usability testing.

The author and the Instruction & Outreach librarian conducted the usability testing in the Bryan Center for two hours one afternoon. Individuals were

approached and asked if they were affiliated with Duke University, and, if so, whether they were interested in participating in the usability test. Before beginning the test, subjects were asked to sign a consent form, and were asked what their affiliation with Duke was and their experience with LibGuides. The librarian administered the test while the author took notes in Evernote. As with the pilot tests, the screencapture and audio were recorded with Morae Recorder, and subjects were asked to think aloud as they completed the tasks. Each subject completed two tasks each for two guides; guides were paired to insure that no two subjects looked at the same combination of guides. A total of six subjects were tested: three undergraduates (one sophomore and two seniors) and three graduate students; four male and two female; from Chemistry, Computer Science, English, Engineering Management, Evolutionary Anthropology, and the School of Medicine. At the end of the test, each subject was compensated with a five dollar gift card to the University Store. A Carnegie Grant from the School of Information and Library Science at UNC was applied for and approved to cover the costs of subject compensation.

Undergraduate Advisory Board.

The Instruction & Outreach librarian had the students in the Undergraduate Advisory Board complete tasks for two guides each at a meeting of the UAB. Students were not observed or recorded, but were asked to write the path they took to complete each task, as well as the answers to the four questions discussed above for each guide. The librarian then asked them to discuss as a group their general thoughts, what made the guides easy and difficult to use, thoughts about suggested

improvements, and access to and promotion of guides. Seven students (four sophomores, one junior, and two seniors from Biology, Classics, Linguistics, Chemistry, History, Political Science, and International Comparative Studies) participated in the testing. Guides were paired to minimize the same guides being tested together, but the number of students present made it necessary for two students to each test on the same pairing of guides (Neuroscience and German Studies). However, order was varied in this case to avoid an order effect. The test instrument is included in Appendix B. The students signed consent forms and were compensated with five dollar gift cards to the University Store. Though usability testing in the Bryan Center attempted to include a random selection of Duke University affiliates, the testing conducted with the Undergraduate Advisory Board, a self-selected group, did not use a random sample.

Due to time constraints, this study did not include course guides. Though course guides are similar in design and content, the objective behind their creation is distinct. Subject guides are meant to be used by anyone who is a novice to research in a particular field, while course guides are the result of collaboration between faculty and librarians, and are designed to introduce students to resources they can use for a particular class or assignment. Subject guides are often sought out by users, who have no guidance in using them, while course guides are usually introduced to users by a librarian or faculty member as a recommended resource.

Data Analysis

The recordings from the usability tests were viewed in Morae Manager. The time to task completion was calculated for each task, the path taken was noted

("Path taken: "Guides to Economic Literature" in "For in-depth research" box on "Getting Started" page"), and a note was made of whether the subject completed the task or failed to complete the task. Notes were also made of where subjects expressed difficulty and explained their choices, as well as their answers to the post-questionnaires. These notes, the notes taken at the time of the testing, and the tests from the UAB (along with the librarian's notes about the group discussion) were compared and a set of codes were developed identifying features of the guides that either increased or decreased usability, either because a subject explicitly mentioned it, or because subjects were observed to interact with particular features successfully or unsuccessfully. Coding of the video and audio of the usability tests, the forms filled out by the UAB, and the notes taken by the librarian at the UAB meeting was done by the author. To decrease coding bias, tests from the UAB meeting were also coded by the librarian independently. To address inter-rater reliability, the author and librarian discussed any discrepancies in coding until consensus was achieved. The codes are included in Appendix C.

Only thirteen students took part in this study, though each guide was tested by at least six subjects, and two guides were tested by seven subjects. Krug (2010) suggests three to four subjects per round of iterative usability testing.

Results

Experience with LibGuides

Nine of the 13 subjects had no previous experience with LibGuides at Duke. Three of the four subjects who had previous experience had been introduced to them by an instructor in class or orientation. Subjects with previous experience

have used them for class assignments (2), research (1), and patient management in medical school (1). Frequency of use is illustrated in Figure 1. Among subjects who had never used a LibGuide, Google Scholar was the resource most commonly identified as a starting point for research (Figure 2).

Figure 1

Frequency of LibGuide Use Among Subjects Who Had Used LibGuides

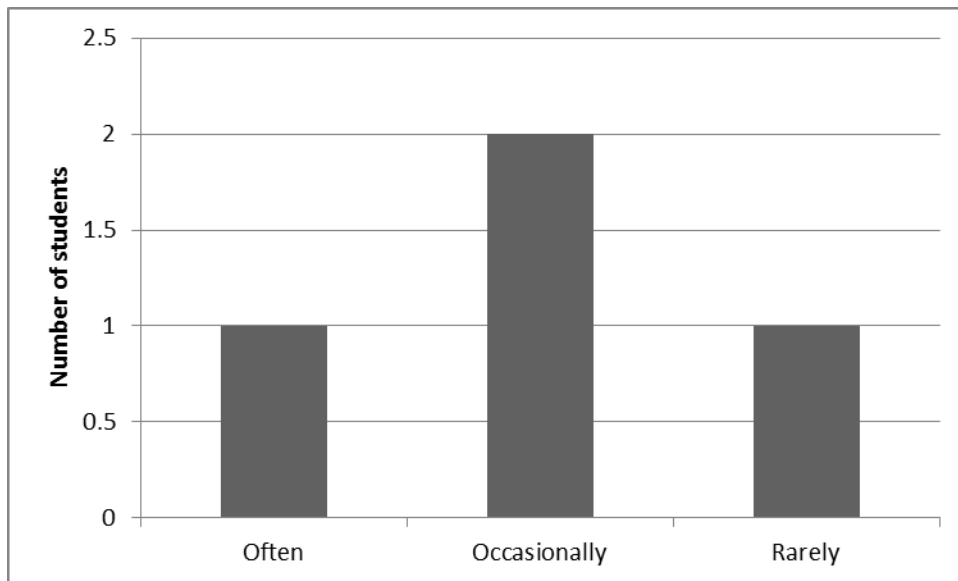
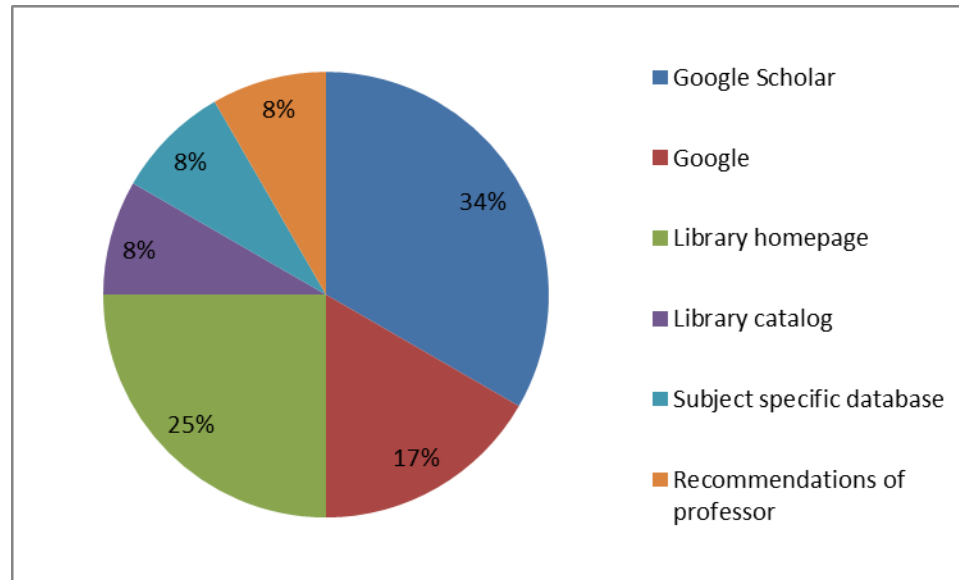


Figure 2

Answers to the Question, "Where do you start your research?" Among Subjects Who Had Never Used LibGuides



Task Completion

German Studies, task one.

"You're writing a paper on Nazi Germany and the Soviet Union. Where can you find an article on this topic?"

Expected path: "Years 3 & 4: German Literature and History" tab>"Key Databases for Scholarly Articles on German Literature and History" box>one of the databases in the box that mentions history coverage.

One subject tried to perform a catalog search, but was using the search box, which is set to search the guide by default, and did not get any results. Subjects were expected to navigate to the second tab, which mentions history coverage, but most remained on the first page and chose a resource from the top, central box, listed under "Duke Encyclopedias". One subject chose another tab, which also included "history" in its name.

German Studies, task two.

“You are beginning research for a paper on the German surrealist painter, Max Ernst, and you want to find an encyclopedia entry to get you started. Find a resource where you can find an encyclopedia entry on Max Ernst.”

Expected path: “Year 1 & 2: German Language and Culture”>“Country Information” box>a resource listed under “Encyclopedias”, preferably Biography Resource Center

Subjects were generally able to complete this task successfully.

Neuroscience, task one.

“You’re writing a report on autism and you need a general overview to get started. Find a resource that can give you an overview of this topic.”

Expected path: “Getting Started” page>“Top Reference Works”>Dictionary of Cognitive Science OR Encyclopedia of Neuroscience

Most subjects chose a book from the “Top Reference Works” box, but not always the two expected resources. The resources in this box lacked description, so subjects often relied on titles to get an indication of what sort of information could be found in each.

Neuroscience, task two.

“Now you want to find a book on autism. Where would you go?”

Expected path: “Search/Help”>“Search the Library Catalog” box

Three subjects completed this task, one only because she was confused and was looking for help. Another searched the search box (which by default searches the guide), thinking it was a catalog search, and was surprised not to get any results.

One subject discovered the catalog search box on this page while answering the post-task questionnaire and suggested moving it closer to the “Getting Started” tab.

Images Collections for Duke Users, task one.

“You are writing a paper on artistic representations of religious figures through history. Where can you find an image of classical religious art?”

Expected path: “Index of Christian Art” either in “Classical Studies” or “Religion” box on “Collections” page.

Only one subject successfully completed this task, which required scrolling to the bottom of a long page. The rest of the subjects scrolled halfway down before giving up and trying another page.

Images Collections for Duke Users, task two.

“You want to use an editorial cartoon in a paper you are going to publish. Find a resource where you can obtain the rights to publish the image.”

Expected path: Association of American Editorial Cartoonists in the Rights Clearing box on the Copyright tab.

Subjects found the Copyright tab easily, but were unsure where to go from there and often chose the first link on the page.

Economics, task one.

“You are writing paper on finance and need a recent article. Find a resource that you can use to search for current business and economic articles.”

Expected path: EconLit, ABI/Inform, or Business Source Complete in the “Key Literature Indexes and Collections” box on the “Getting Started” page.

Several subjects ignored the resources in the “Key Literature Indexes and Collections” box, which was front and center, and chose an e-journal from the “E-journals” box, which was lower on the page, and off to the side.

Economics, task two.

“Find a recent book, published in 2011 or 2012, on the subject of Finance in the Duke libraries.”

Expected path: “Recent Books and Economic Indicators” tab, scroll down to “Finance” box or select “Finance” from “New books” box.

Half of the subjects were able to complete this task successfully. Success and failure in completing each task are illustrated in Figure 3. Times to task completion are tabulated in Tables 1-4.

Figure 3

Total Successes and Failures in Completing Each Task

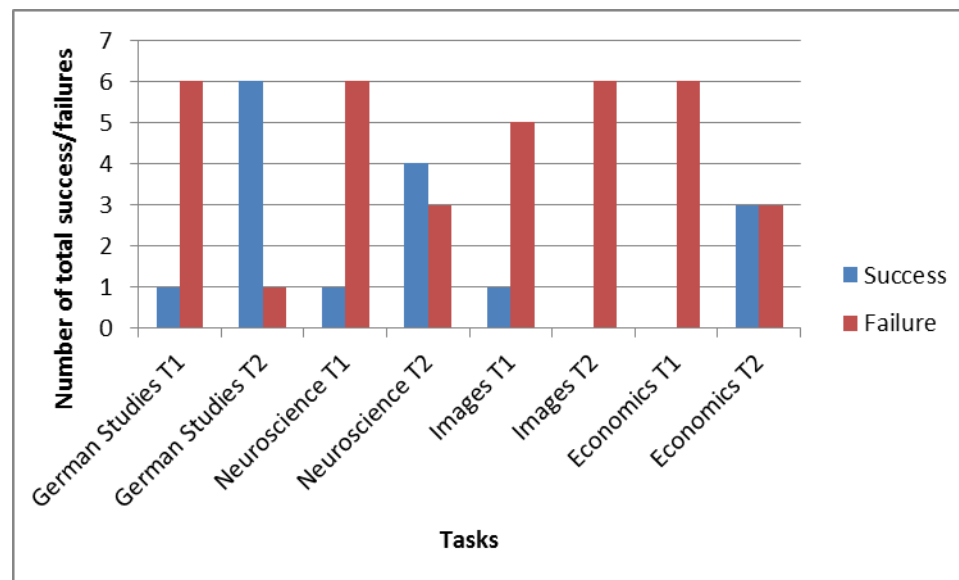


Table 1

Time to Completion for German Studies Guide Tasks in Seconds

German Studies T1	German Studies T2
43.35	4.26
01:26.6	2.52
34.36	10.1
38.855	5.626666667

Note. The bolded numbers are averages.

Table 2

Time to Completion for Neuroscience Guide Tasks in Seconds

Neuroscience T1	Neuroscience T2
48.73	01:37.8
9.75	51.36
9.52	9.97
22.66666667	30.665

Note. The bolded numbers are averages.

Table 3

Time to Completion for Images Collections for Duke Users Guide Tasks in Seconds

Images T1	Images T2
48.6	19.37
29.74	14
39.5	30.65
39.28	21.34

Note. The bolded numbers are averages.

Table 4

Time to Completion for Economics Guide Tasks in Seconds

Economics T1	Economics T2
45.55	01:32.0
01:52.8	39.56
34.12	7.11
39.835	23.335

Note. The bolded numbers are averages.

Ease of Use

Despite the high failure rate of many of the tasks, the guides were generally perceived as easy to use, on a scale of one to five, with one being very difficult and five being very easy (Table 5). Some subjects gave a range of scores (e.g. 3.5-4) and thus were not included.

Table 5

Subjects' Determination of Ease of Use of Each Guide

German Studies	Neuroscience	Images	Economics
4	2	3	4
4	4	4	4
4	4	3	4
4	2	4	3
4	3	4	2
4	3		
4			
4	3	3.6	3.4

Note. On a scale from one to five, one being very difficult, and five being very easy. The bolded numbers are averages.

Observed and Perceived Facilitators and Barriers to Use

What made this guide easy to use?

German Studies guide.

Boxes

“Separated into categories”

“Very nicely laid out...easy to access”

“Everything you need is right there & categorized well”

“It’s pretty organized”

Many resources

“...a lot of links...”

Tabs

“Tabs at the top”

Neuroscience guide.

Few resources

“Very streamlined”

“You can view everything on a single page. On the other one you had to scroll”

Tab naming

“Clearly labeled tabs”

Few tabs

“There’s only a couple of main topics and those are pretty well divided”

Images Collections for Duke Users guide.

Many resources, resource descriptions

“Lots of resources, the blurbs were useful”

Tabs

“These themes at the top”

“The tabs across the top”

Economics guide.

Tabs

“I really like how this one was separated into diff. tabs making it much easier to read”

“recent books econ indicators’ tab was very straightforward”

“This tab”

Tab names

“Clearly labeled tabs”

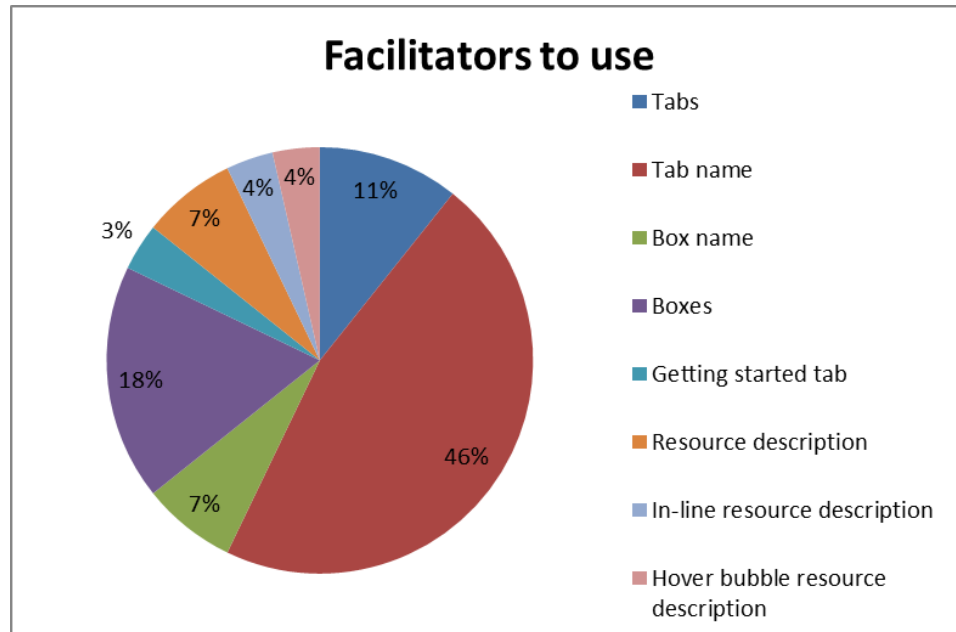
Boxes

“That it’s broken up”

The feature most frequently identified as facilitating use of the guides was naming of tabs (Figure 4). Tabs were generally felt to assist in navigation by indicating the content that was included on each page. Subjects also expressed an appreciation for having the guide organized into several tabs, rather than including all resources listed on one page.

Figure 4

Features Identified as Facilitators to Guide Use



What Made This Guide Difficult to Use?

German Studies guide.

Tab names

“Some of the headings [tabs] overlapped [in coverage]”

“What’s the difference between ‘Advanced Research in German Studies’ and ‘Research in History’?”

Lack of resource description

“So many resources w/no explanation”

Clarity

“Some words were in German”

Long resource descriptions

“A lot of wording... If you could just shorten the words and give me the keywords, like ‘peer-reviewed’”

Many resources

“There’s a lot of stuff to look through”

Neuroscience guide.

Getting Started, Instruction on using guide

“It doesn’t give a clear indication where to start”

“Lack of instruction”

Order of tabs

“I might put the ‘Search/Help’ next to... ‘Getting Started’... the order was weird because I didn’t really get there first.”

RSS feeds of books in catalog

“I don’t really find ‘New Books’ helpful”

Image Collections for Duke Users guide.

Many links

“There were too many links”

“First page has...too much stuff”

Economics guide.

Visibility of tabs

“I almost missed the second tab at top”

Many resources

“I was a little taken aback/stunned at first by all the links...”

“Dense”

RSS feeds of books in catalog

“Is there a way to just get rid of this and put the website information there so I can search for what I want?”

Lack of resource description

“I didn’t know where to look... so I just made a random guess”

Lack of instruction on using guide

“Not necessarily knowing where to go”

The biggest barrier to use was the practice of including a large number of resources (Figure 5). Subjects were overwhelmed by long lists of resources and often did not scroll to the end of particularly long page, choosing resources that were near the top of the page.

What Would Have Made This Guide Easier to Use?

German Studies guide.

Tab names

“Consolidate headings”

Resource descriptions

“Maybe a short caption under the references”

Getting Started

“Getting Started” tab

Few links

“Fewer links or more suggested links”

Vertical arrangement of boxes

“It would be nice if you could have everything in a straight line with a table of contents”

Neuroscience guide.

Instruction on using guide

“A ‘how to’ guide on using the page itself”

“How to use guide”

RSS feeds for books in catalog

“Browse books by title/author instead of just ‘new’”

Image Collections for Duke Users guide.

Boxes, Tabs

“The links/databases were grouped better”

Redundancy within guide

“Is there redundancy between tabs/sections? Could maybe reduce that”

Fewer/recommended resources

“Give a recommended one [resource] to start off with”

Economics guide.

Tabs

“Just more conspicuous tabs”

Instruction on using guide

“How to use guide”

“An intro page might be good... a ‘how to’ animation... that would tell the average person... how to navigate this”

Resource descriptions

“These links, if you could make them a little easier, because I really cannot make sense of what these are”

One subject expressed a desire for one or two recommended resources that were highlighted as a starting point. Given that most of the subjects had no previous experience with the LibGuides interface, they found the lack of instruction on using guides to be problematic, and expressed difficulty in knowing “where to start”. In addition to being an observed or identified barrier, subjects expressed a desire for the feature to be included in guide (Figure 6). Similarly, subjects also expressed desires for a table of contents and “Getting Started” page. Subjects also found RSS feeds of recent books from the Duke catalog to be confusing and would have preferred a scoped search. The lack of description for resources also made it difficult for subjects to decide which resource was appropriate for a particular task. The search box, which includes a dropdown menu allowing users to search the guide, all guides, the catalog, or the web, proved difficult for subjects, who were regularly unclear on what they were searching. Finally, subjects expressed the desire for descriptions of resources, indicating what information they could be used to find; one subject expressed a desire for more succinct descriptions.

Figure 5

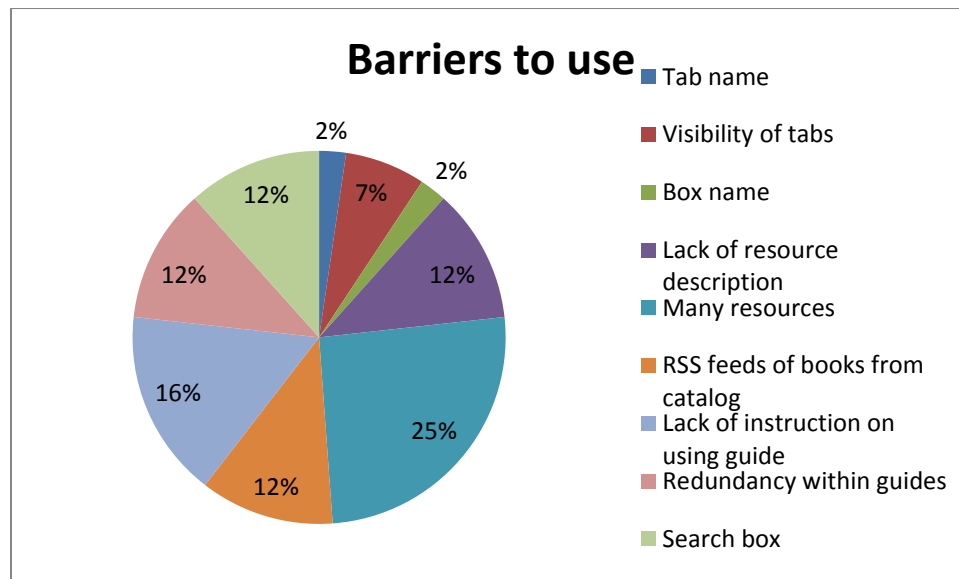
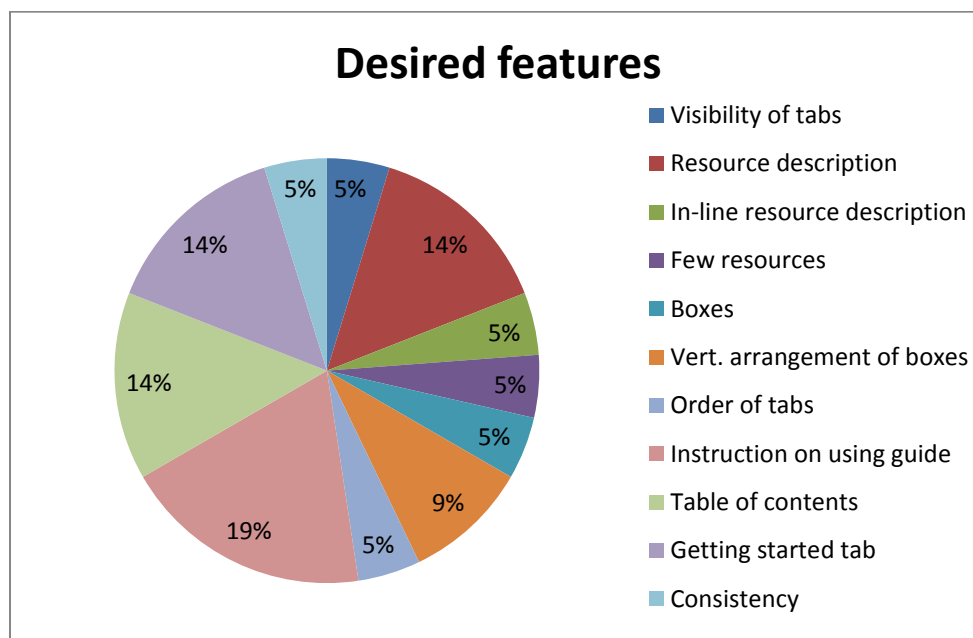
Features Identified as Barriers to Guide Use

Figure 6

Features Desired by Subjects to Increase Usability

Discussion

Recommendations

Limit the number of resources, or highlight one or two to give students a starting point.

Subjects expressed a strong preference for less dense guides. They preferred more tabs and a “Welcome” or “Getting Started” page to a “really dense opening page”.

Subjects also showed a reluctance to scroll all the way down a long page, stopping halfway down the page if they did not see a useful resource and trying a different tab.

Provide short in-line descriptions of resources.

Many resources in the guides were simply listed and lacked a description. Subjects often made decisions solely based on the resource title, and expressed a desire for descriptions of resources “in order to know why you might use a resource”. Previous studies suggest that descriptions of resources that appear when you hover over the link are difficult to use; only one subject seemed to use descriptions that were presented in this way.

Provide instruction on using the guide.

The “Getting Started” tab, which resulted from previous usability tests, was noted by subjects as a helpful feature that should be consistent between guides. Subjects also indicated that it was difficult to know “where to start” and expressed a desire for a “Getting Started” page or instruction on how to use the guides.

Take care when naming tabs and boxes.

Navigation through LibGuides is usually by the tabs along the top of the page; therefore, their naming and visibility contribute significantly to usability. While other studies suggest that users do not notice tabs, only one subject in this study gave any indication that he did not see the tabs (he only explored the first page of the guides). However, they often found the naming confusing. On one guide in particular, there seemed to be an overlap in coverage between tabs, so subjects were unsure which to investigate to complete the tasks.

On one guide, a box containing article databases included the phrase “literature indexes” in the title. On a task requiring subjects to find a resource they could use to search for articles, subjects regularly skimmed past this box, which was front and center, for a box lower and to the side which was simply entitled “E-journals”.

Other Suggestions

Eliminate RSS feeds of library resources.

Two guides included RSS feeds of new books in the Duke Libraries catalog. Subjects found these confusing or unhelpful and would have preferred recommended books or a scoped search box.

Redesign guide search boxes.

Though previous studies indicated that users desire a search box that will enable them to search the guide, subjects in this study tried to use it to search for books or articles and were confused or frustrated when they realized they were searching the guide.

Future directions

Content of research guides.

Comments that subjects made about the content of the guides was disregarded for the purposes of this study, which was only concerned with the design of guides. It would be worthwhile to investigate what kinds of content users would prefer to be included in research guides.

Course guides.

An instrument for testing course guides was developed and will be used to conduct testing on Duke Libraries' course guides. Conducting testing with students who were currently in a course for which a course guide had been created was considered, but deemed impractical and unnecessary in this case. However, librarians from University of North Carolina, Wilmington, recently presented an ingenious method at the 2012 Librarians Association at University of North Carolina-Chapel Hill (LAUNC-CH) Conference (Coats, Pemberton, & Wiegand, 2012). A systems librarian observed students using the library's website while completing an activity that was both an active learning activity and a skills assessment during an information literacy session. The systems librarian made discoveries that guided redesign of the library website. This approach would require coordination between an observer, the librarian leading the session, and the faculty member teaching the course, and is probably best for testing that will have a large impact on services.

Utility of subject guides.

In the literature on research guides, the topic of the relative utility of subject guides and course guides is often discussed. Several studies suggest that subject guides approach research from too broad a perspective and are therefore not as

useful or as well used as course pages (Reeb & Gibbons, 2004; Strutin, 2008).

Creation and maintenance of these guides is time consuming, and it would be worth rethinking the long-standing assumption that broad subject guides are worth the effort. A good beginning would be comparing usage statistics between and within course guides and subject guides and investigating why guides are and are not used.

Marketing of research guides.

Most subjects had never used or even heard of such guides. Some were glad to learn of these resources, which they found useful, and even expressed the wish that they had known about them earlier. Those who had used them had been introduced to them by an instructor or librarian during class or orientation. San Jose State University librarians found that students who had received library instruction tend to use subject guides more and find them more useful (Staley, 2007). Many libraries, including those at Duke, link to course guides within course/learning management systems (Adebonojo, 2010; E. Daly, 2010; Fletcher, 2010; Kellam, Cox, & Winkler, 2009; Solis & Hampton, 2009). Librarians at the J. Paul Leonard Library at San Francisco State University found email to be an effective marketing tool (Foster, Wilson, Allensworth, & Sands, 2010). University of Florida librarians found the library catalog another effective tool (Simpson, Williams, Arlen, & Bushnell, 2005). More work should be done on effectively marketing these valuable tools to users.

Librarian feedback.

In order to encourage and support use of best practices in LibGuide design, it is important to get feedback from guide creators. A 1999 survey of librarians in the

southeastern United States found that while librarians feel that subject guides are useful, most do not know if their patrons find them useful or usable (Morris & Grimes, 1999). Some possible topics for discussion include perceived usability and utility of guides, and what support (e.g. training, documentation) librarians need to develop effective guides.

Conclusion

The purpose of this study was to confirm the findings of previous usability studies in order to make recommendations for best practices. In addition to accomplishing this, this study demonstrates two methods for testing usability. A comparison of the data collected from the more intensive observational usability testing, and the modified usability testing/focus group that had students complete a worksheet and discuss their experiences as a group showed that the same observations and conclusions could be made using either method. This study also makes recommendations for further investigation into course guide usability, the utility of broad subject guides, and librarian perceptions and needs regarding research guides.

References

- Adebonojo, L. (2010). LibGuides: Customizing subject guides for individual courses. *College & Undergraduate Libraries*, 17(4), 398-398-412.
- Buczynski, J. (2009). Online web development platforms enable all reference staff to work on subject guides. *Internet Reference Services Quarterly*, 14(3-4), 61-61-66.
- Coats, L., Pemberton, A., & Wiegand, L. (2012). *Synergy of Systems and Instruction: A Unique Website Usability Study*. Presented at the Annual Conference of the Librarians Association of University of North Carolina-Chapel Hill, Chapel Hill, NC.
- Daly, E. & Whiteside, A. (2010). *LibGuides interface: Usability testing*. Unpublished manuscript. from <https://intranet.lib.duke.edu/groups/libguides/libguides-evaluation/LibGuidesFindings.doc>
- Daly, E. (2010). Embedding library resources into learning management systems: A way to reach duke undergrads at their points of need. *College & Research Libraries News*, 71(4), 208-212. Retrieved from https://auth.lib.unc.edu/ezproxy_auth.php?url=http://search.ebscohost.com/login.aspx?direct=true&db=lxh&AN=49179982&site=ehost-live&scope=site

Dean, C.W. (1998). The public electronic library: Web-based subject guides. *Library Hi Tech*, 16(3/4), 80-88. doi:10.1108/07378839810305918

Fletcher, J. (2010). Going where your users are: Embedding library resources into VLE course pages. *Multimedia Information & Technology*, 36(4), 22-24.

Retrieved from

https://auth.lib.unc.edu/ezproxy_auth.php?url=http://search.ebscohost.com/login.aspx?direct=true&db=lxh&AN=56608677&site=ehost-live&scope=site

Foster, M., Wilson, H., Allensworth, N., & Sands, D. T. (2010). Marketing research guides: An online experiment with LibGuides. *Journal of Library Administration*, 50(5), 602-616. doi:10.1080/01930826.2010.488922

Hintz, K., Naslund, J., Farrar, P., Lee, T., Eshghi, S., Stephens, T., . . . McCauley, A.

(2010). Letting students take the lead: A user-centred approach to evaluating subject guides. *Evidence Based Library and Information Practice*, 5(4), 39-52.

Retrieved from

<http://vnweb.hwwilsonweb.com/hww/jumpstart.jhtml?recid=0bc05f7a67b1790e06bc114cd79d5996a0fb2ee93099842eb32f60a72197383db72825df9c757a91&fmt=C>

Hungerford, R., Ray, L., & Tawatao, C. & Ward, J. (2010). *LibGuides usability testing: Customizing a product to work for your users*. Unpublished manuscript. from <http://hdl.handle.net/1773/17101>

Kellam, L. M., Cox, R., & Winkler, H. (2009). Hacking blackboard: Customizing access to library resources through the blackboard course management system.

Journal of Web Librarianship, 3(4), 349-363. doi:10.1080/19322900903328765

Krug, S. (2010). *Rocket surgery made easy : The do-it-yourself guide to finding and fixing usability problems*. Berkeley, Calif.: New Riders. Retrieved from

<http://search.lib.unc.edu?R=UNCb6403880>

LibGuides assessment report: Fall 2008 & spring 2009. (2009). Unpublished manuscript from <https://intranet.lib.duke.edu/groups/libguides/libguides-evaluation/LibGuidesAssessmentJune2009.doc>

Morris, S. E., & Grimes, M. (1999). A great deal of time and effort: An overview of creating and maintaining internet-based subject guides. *Library Computing*, 18(3), 213-216. Retrieved from

https://auth.lib.unc.edu/ezproxy_auth.php?url=http://search.ebscohost.com/login.aspx?direct=true&db=lxh&AN=ISTA3502944&site=ehost-live&scope=site

Reeb, B., & Gibbons, S. (2004). Students, librarians, and subject guides: Improving a poor rate of return. *Portal: Libraries & the Academy*, 4(1), 123-130. Retrieved from

https://auth.lib.unc.edu/ezproxy_auth.php?url=http://search.ebscohost.com/login.aspx?direct=true&db=lxh&AN=12342005&site=ehost-live&scope=site

Simpson, B., Williams, P., Arlen, S., & Bushnell, P. (2005). Accessing locally created subject guides via the library's catalog. *Collection Management*, 30(4), 31-42.

Retrieved from

https://auth.lib.unc.edu/ezproxy_auth.php?url=http://search.ebscohost.com/login.aspx?direct=true&db=lxh&AN=25386752&site=ehost-live&scope=site

Sinkinson, C., Alexander, S., Hicks, A., & Kahn, M. (2012). Guiding design: Exposing librarian and student mental models of research guides. *PORTAL-LIBRARIES AND THE ACADEMY*, 12(1), 63-84.

Smith, M. M. (2008). 21st century readers' aids: Past history and future directions. *Journal of Web Librarianship*, 2(4), 511-523. doi:10.1080/19322900802473886

Solis, J., & Hampton, E. M. (2009). *Promoting a comprehensive view of library resources in a course management system* doi:10.1108/03074S1910928603

Staley, S. M. (2007). Academic subject guides: A case study of use at san jose state university. *College & Research Libraries*, 68(2), 119-139. Retrieved from <http://vnweb.hwwilsonweb.com/hww/jumpstart.jhtml?recid=0bc05f7a67b1790e06bc114cd79d5996f2cd01e5aaebf4c91a5d0d9dfc69dccb51725fc7ef6c8b7b&fmt=H>

Strutin, M. (2008). Making research guides more useful and more well used. *Issues in Science & Technology Librarianship*, (55) Retrieved from <http://www.istl.org/>

Vileno, L. (2007). From paper to electronic, the evolution of pathfinders: A review of the literature. *Reference Services Review*, 35(3), 434-451. Retrieved from

<http://vnweb.hwwilsonweb.com/hww/jumpstart.jhtml?recid=c84804dfd2d2953eba192216c290e2de1c77730b6192c0778a7f6509a8564645&fmt=C>

Appendix A

Usability Test Script

Thank you for agreeing to take part in this study.

I am a researcher from the University of North Carolina at Chapel Hill. I am interested in improving the interface libraries use for their research and course guides. The purpose of this test is to learn more about how users interact with pages that use this design [point to LibGuide].

If it is okay with you, we are going to record this session. All notes, screen capture, and recording are for analysis. They will not be released publicly.

Before we start the test, there's some paperwork I'm going to ask you to fill out. [Hand subject 2 copies of consent form] This is a consent form stating that all identifying information will be removed. We have 2 copies of the form here—one for you to keep and one for our records. I'll give you some time to read that and sign it. If you have any questions, please let me know. [Take signed copy and leave unsigned copy for them]

You will be receiving compensation in the form of a \$5 gift card. I need you to sign and date this form confirming receipt of the gift card [hand subject receipt]. This information will be kept in a secure file, separate from the research data.

BEGIN RECORDING

Okay, first some general questions:

1) Are you an undergrad, grad student, faculty member, staff member?
What is your major/what department are you in? If you are an undergrad, what year are you?

2) Have you ever used a research or course guide like this one? Yes / No
If yes...

How do you find these guides (e.g. Google, Blackboard, from librarian)?

When/for what purpose have you used a subject or course guide?

Would you say you use these guides often, occasionally or rarely?

If no...

Where do you usually start your research?

For the next set of questions, it would help me if you think aloud as much as possible, letting me know what features are helpful and what features make the guide hard to use. Don't worry – there are no right or wrong answers.

German Studies Resources Research Guide

1) You're writing a paper on Nazi Germany and the Soviet Union. Where can you find an article on this topic?

Expected path: "Years 3 & 4: German Literature and History" tab>"Key Databases for Scholarly Articles on German Literature and History" box>one of the databases in the box that mentions history coverage.

Path taken:

Task completed?

Suggested questions: Why did you choose that resource? (if subject uses search box)

What do you think you're searching?

Things to notice: How does student choose a database? Do they read the description? Do they seem to have trouble deciding on a resource?

2) You are beginning research for a paper on the German surrealist painter, Max Ernst, and you want to find an encyclopedia entry to get you started. Find a resource where you can find an encyclopedia entry on Max Ernst.

Expected path: "Year 1 & 2: German Language and Culture">"Country Information" box>a resource listed under "Encyclopedias", preferably Biography Resource Center

Path taken:

Task completed?

Suggested questions: Why did you choose that resource? (if subject uses search box)

What do you think you're searching?

Things to notice: Do they have trouble finding the right page? Do they seem confused by the lack of a description?

3)How easy was this guide to use, on a scale of 1 to 5, 1 being very difficult and 5 being very easy?

4)What made this guide difficult to use?

5)What made this guide easy to use?

6)What would have made this guide easier to use?

Economics Research Guide

1) You are writing paper on finance and need a recent article. Find a resource that you can use to search for current business and economic articles.

Expected path: EconLit, ABI/Inform, or Business Source Complete in the "Key Literature Indexes and Collections" box on the "Getting Started" page.

Path taken:

Task completed?

Suggested questions: Why did you choose that resource? (if subject uses search box)

What do you think you're searching?

Things to notice: Did they read the description of the databases in the hover

bubbles?

2) Find a recent book, published in 2011 or 2012, on the subject of Finance in the Duke libraries.

Expected path: "Recent Books and Economic Indicators" tab, scroll down to "Finance" box or select "Finance" from "New books" box.

Path taken:

Task completed?

Suggested questions: (if subject uses search box) What do you think you're searching?

Things to notice: If they scroll down to Finance box, do they use the hover bubbles to confirm publication year?

3) How easy was this guide to use, on a scale of 1 to 5, 1 being very difficult and 5 being very easy?

4) What made this guide difficult to use?

5) What made this guide easy to use?

6) What would have made this guide easier to use?

Neuroscience Research Guide

1) You're writing a report on autism and you need a general overview to get started. Find a resource that can give you an overview of this topic.

Expected path: "Getting Started" page > "Top Reference Works" > Dictionary of Cognitive Science OR Encyclopedia of Neuroscience

Path taken:

Task completed?

Suggested questions: Why did you choose this resource? (if subject uses search box) What do you think you're searching?

Things to notice: Do they seem to have difficulty choosing an appropriate resource?

2) Now you want to find a book on autism. Where would you go?

Expected path: "Search/Help" > "Search the Library Catalog" box

Path taken:

Task completed?

Suggested questions: Why did you choose that resource? (if subject uses search box) What do you think you're searching?

Things to notice: Do they seem to have difficulty navigating to the correct page?

3) How easy was this guide to use, on a scale of 1 to 5, 1 being very difficult and 5 being very easy?

4) What made this guide difficult to use?

5)What made this guide easy to use?

6)What would have made this guide easier to use?

Images Collections for Duke Users

1) You are writing a paper on artistic representations of religious figures through history. Where can you find an image of classical religious art?

Expected path: "Index of Christian Art" either in "Classical Studies" or "Religion" box on "Collections" page.

Path taken:

Task completed?

Suggested questions: Why did you choose that resource? (if subject uses search box)

What do you think you're searching?

Things to notice: Do they have difficulty locating the correct resource? Do they read the resource description?

2) You want to use an editorial cartoon in a paper you are going to publish. Find a resource where you can obtain the rights to publish the image.

Expected path: Association of American Editorial Cartoonists in the Rights Clearing box on the Copyright tab.

Path taken:

Task completed?

Suggested questions: Why did you choose that resource? (if subject uses search box)

What do you think you're searching?

Things to notice: Do they have difficulty locating the correct page? Do they have difficulty selected the appropriate resource?

3)How easy was this guide to use, on a scale of 1 to 5, 1 being very difficult and 5 being very easy?

4)What made this guide difficult to use?

5)What made this guide easy to use?

6)What would have made this guide easier to use?

Thank you for your time and participation.

Appendix B

Undergraduate Advisory Board Test Instrument

German Studies Resources Research Guide,<http://guides.library.duke.edu/german>

1) You're writing a paper on Nazi Germany and the Soviet Union. Where can you find an article on this topic?

What'd you do? _____

2) You are beginning research for a paper on the German surrealist painter, Max Ernst, and you want to find an encyclopedia entry to get you started. Find a resource where you can find an encyclopedia entry on Max Ernst.

What'd you do? _____

3) How easy was this guide to use, on a scale of 1 to 5, 1 being very difficult and 5 being very easy?

Score: _____

4) What made this guide difficult to use?

Notes: _____

5) What made this guide easy to use?

Notes: _____

6) What would have made this guide easier to use?

Notes: _____

Year: _____

Major(s): _____

Economics Research Guide, <http://guides.library.duke.edu/economics>

1) You are writing paper on finance and need a recent article. Find a resource that you can use to search for current business and economic articles.

What'd you do? _____

2) Find a recent book, published in 2011 or 2012, on the subject of Finance in the Duke libraries.

What'd you do? _____

3) How easy was this guide to use, on a scale of 1 to 5, 1 being very difficult and 5 being very easy?

Score: _____

4) What made this guide difficult to use?

Notes: _____

5) What made this guide easy to use?

Notes: _____

6) What would have made this guide easier to use?

Notes: _____

Year: _____

Major(s): _____

Neuroscience Research Guide, <http://guides.library.duke.edu/neuroscience>

1) You're writing a report on autism and you need a general overview to get started. Find a resource that can give you an overview of this topic.

What'd you do? _____

2) Now you want to find a book on autism. Where would you go?

What'd you do? _____

3) How easy was this guide to use, on a scale of 1 to 5, 1 being very difficult and 5 being very easy?

Score: _____

4) What made this guide difficult to use?

Notes: _____

5) What made this guide easy to use?

Notes: _____

6) What would have made this guide easier to use?

Notes: _____

Year: _____

Major(s): _____

Images Collections for Duke Users, <http://guides.library.duke.edu/images>

1) You are writing a paper on artistic representations of religious figures through history. Where can you find an image of classical religious art?

What'd you do? _____

2) You want to use an editorial cartoon in a paper you are going to publish. Find a resource where you can obtain the rights to publish the image.

What'd you do? _____

3) How easy was this guide to use, on a scale of 1 to 5, 1 being very difficult and 5 being very easy?

Score: _____

4) What made this guide difficult to use?

Notes: _____

5) What made this guide easy to use?

Notes: _____

6) What would have made this guide easier to use?

Notes: _____

Year: _____

Major(s): _____

Have you ever used a research or course guide like this one? Yes / No

If yes...

How did you find the guide(s) you used? _____

When/for **what purpose** have you used a subject or course guide?

Would you say you use these guides **often, occasionally or rarely**? (circle one)

If no...

Where do **you usually start** your research? _____

Have you ever used a research or course guide like this one? Yes / No

Questions asked by the librarian during the group discussion:

Have you ever used a research or course guide like this one?

General thoughts about the guides you looked at?

What made them easy to use?

What made them difficult to use?

Did it bother you that the guides you looked at were formatted differently?

Would more consistency have helped? If so, where would you suggest implementing consistency/guidelines?

What is the best/easiest way to access these guides? How might we promote these guides?

Appendix C

Codes

Codes were paired from each group, with codes in Group 1 being paired with a code from Group 2 as appropriate.

Group 1:

Tabs
Tab name
Visibility of tabs
Box name
Resource description
Lack of resource description
In-line resource description
Hover bubble resource description
Few resources
Many resources
Few tabs
Many tabs
Boxes (grouping/categories)
Few boxes
Many boxes
Vertical arrangement of boxes
Order of tabs
RSS feeds of books from catalog
Instruction on using guide
Instruction on using resources
Lack of instruction on using guide
Table of contents
Getting started box
Getting started tab
Redundancy within guides
Consistency (between guides)
Search box

Group 2:

Facilitator
Barrier
Desired